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10/728,358	12/03/2003	Tianyi Liao	LP 4820 US NA	6394
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CONNOLLY BOVE LODGE & HUTZ, LLP			PIZIALI, ANDREW T	
P O BOX 2207			ART UNIT	
WILMINGTON, DE 19899			PAPER NUMBER	

1771

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/728,358

Applicant(s)

LIAO, TIANYI

Examiner

Andrew T. Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/8/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-8, drawn to a method for making a composite yarn, classified in class 156, subclass 229.
  - II. Claims 9-20, drawn to a composite yarn and a fabric comprising a composite yarn, classified in class 442, subclass 197.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and Group II are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make other and materially different product.

The process can be used to make a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft of 1.1X the original spun length of the strand. In the instant case the product as claimed can also be made by another and materially different process.

Applying the size material to the elastomeric fiber and/or the hard yarn prior to forming the yarn can make the product.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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4. If the applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined. Therefore, upon the election of Group II, rejoinder will be considered upon indication of allowable subject matter pursuant to MPEP 821.04.

5. During a telephone conversation with Myron Wyche on 4/18/2005 a provisional election was made with traverse to prosecute the invention of Group II, claims 9-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-8 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

#### ***Claim Objections***

6. Claim 9 is objected to because of the following informality: The claim mentions a range of from 1.2X to at least 6.2X. The claimed range covers anything above 1.2X, but the language is confusing because an upper limit is not given although 6.2X is mentioned. Appropriate correction is requested.

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 5,896,634 to Brodowski et al. (hereinafter referred to as Brodowski).

Regarding claims 9-20, Strachan discloses a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft in a range from 1.2X to at least 6.2X of an original spun length of the strand; at least one hard yarn selected from the group consisting of: synthetic fibers, natural fibers and a blend of synthetic and natural fibers, wherein said hard yarn is aligned adjacent and substantially parallel to said strand to make an aligned yarn (see entire document including column 2, lines 3-19, column 2, lines 60-68 and column 5, lines 32-39).

Strachan discloses that a size material should not be applied prior to the entangling process, but Strachan discloses that certain finishes may be applied which do not prevent the hard yarns from opening during the entanglement process (column 6, lines 52-59). Strachan also discloses that when a lower tension is applied to the composite yarn the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Brodowski discloses that it is known in the art to apply a size material to a composite yarn to result in easy weavability (see column 1, lines 45-68), it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size material to the composite yarn of Strachan, after the entangling process, because the size material allows for easy weavability of the composite yarn.

Regarding claim 10, Strachan discloses that the elastomeric strand may be a spandex yarn of a denier of from 20 to 140 before stretching and that the hard yarn may have a total denier of from 45 to 900 (see Examples).

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Regarding claim 11, Brodowski discloses that a wax may be added to the sizing agent to further improve weavability (column 1, lines 45-67).

Regarding claim 12, Brodowski does not specifically disclose that the sizing agent is applied as a coating, but the examiner takes Official Notice that sizing agents are conventionally applied as coatings.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1 to 1:4, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Brodowski discloses that the size material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

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9. Claims 9-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of Japanese Patent No. 4 733 754 to Nakatomi et al. (hereinafter referred to as Nakatomi).

Regarding claims 9-10 and 12-20, Strachan discloses a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft in a range from 1.2X to at least 6.2X of an original spun length of the strand; at least one hard yarn selected from the group consisting of: synthetic fibers, natural fibers and a blend of synthetic and natural fibers, wherein said hard yarn is aligned adjacent and substantially parallel to said strand to make an aligned yarn (see entire document including column 2, lines 3-19, column 2, lines 60-68 and column 5, lines 32-39).

Strachan discloses that a size material should not be applied prior to the entangling process, but Strachan discloses that certain finishes may be applied which do not prevent the hard yarns from opening during the entanglement process (column 6, lines 52-59). Strachan also discloses that when a lower tension is applied to the composite yarn the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Nakatomi discloses that it is known in the art to apply a size material to a composite yarn to result in easy weavability (see entire document), it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size material to the composite yarn of Strachan, after the entangling process, because the size material allows for easy weavability of the composite yarn.

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Regarding claim 10, Strachan discloses that the elastomeric strand may be a spandex yarn of a denier of from 20 to 140 before stretching and that the hard yarn may have a total denier of from 45 to 900 (see Examples).

Regarding claim 12, Nakatomi does not specifically disclose that the sizing agent is applied as a coating, but the examiner takes Official Notice that sizing agents are conventionally applied as coatings.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1 to 1:4, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Nakatomi discloses that the PVA material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).



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10. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 3,719,664 to Hayes et al. (hereinafter referred to as Hayes).

Regarding claims 9-16, Strachan discloses a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft in a range from 1.2X to at least 6.2X of an original spun length of the strand; at least one hard yarn selected from the group consisting of: synthetic fibers, natural fibers and a blend of synthetic and natural fibers, wherein said hard yarn is aligned adjacent and substantially parallel to said strand to make an aligned yarn (see entire document including column 2, lines 3-19, column 2, lines 60-68 and column 5, lines 32-39).

Strachan discloses that a size material should not be applied prior to the entangling process, but Strachan discloses that certain finishes may be applied which do not prevent the hard yarns from opening during the entanglement process (column 6, lines 52-59). Strachan also discloses that when a lower tension is applied to the composite yarn the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Hayes discloses that it is known in the art to apply a size material to a yarn to result in easy weavability (column 1, lines 5-43), it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size material to the composite yarn of Strachan, after the entangling process, because the size material allows for easy weavability of the composite yarn.

Regarding claim 10, Strachan discloses that the elastomeric strand may be a spandex yarn of a denier of from 20 to 140 before stretching and that the hard yarn may have a total denier of from 45 to 900 (see Examples).

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Regarding claim 12, Hayes discloses that the sizing agent is applied as a coating (column 1, lines 26-43).

Regarding claims 13-16, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1 to 1:4, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

11. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 5,896,634 to Brodowski as applied to claims 9-20 above, and further in view of USPN 3,867,242 to Miller.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Strachan does not specifically mention the use of composite yarns and hard yarns in the warp and/or weft direction, but Miller discloses that it is known in

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the art to alternate elastomeric and non-elastomeric fibers (1:1 ratio) in the warp and/or weft direction to produce the desired fabric characteristics (see entire document including the paragraph bridging columns 4 and 5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Brodowski discloses that the size material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

12. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of Japanese Patent No. 4 733 754 to Nakatomi as applied to claims 9-10 and 12-20 above, and further in view of USPN 3,867,242 to Miller.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Strachan does not specifically mention the use of composite yarns and hard yarns in the warp and/or weft direction, but Miller discloses that it is known in

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Regarding claims 17-20, Nakatomi discloses that the PVA material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

13. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 3,719,664 to Hayes as applied to claims 9-16 above, and further in view of USPN 3,867,242 to Miller.

Regarding claims 13-16, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Strachan does not specifically mention the use of composite yarns and hard yarns in the warp and/or weft direction, but Miller discloses that it is known in

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### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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atp

 7/8/05  
**ANDREW T. PIZIALI**  
**PATENT EXAMINER**